

# *United States Army* *Logistics Transformation Agency*

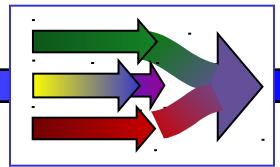


Common Logistics Operating  
Environment (CLOE)

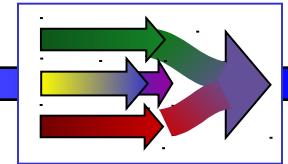
GOSC Pre-Brief  
DCS, G-4

11 Sep 2003

Materiel Logistics  
Division  
Logistics Transformation  
Agency  
(717) 770-7600

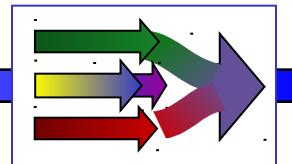


## *Background*



# What is CLOE?

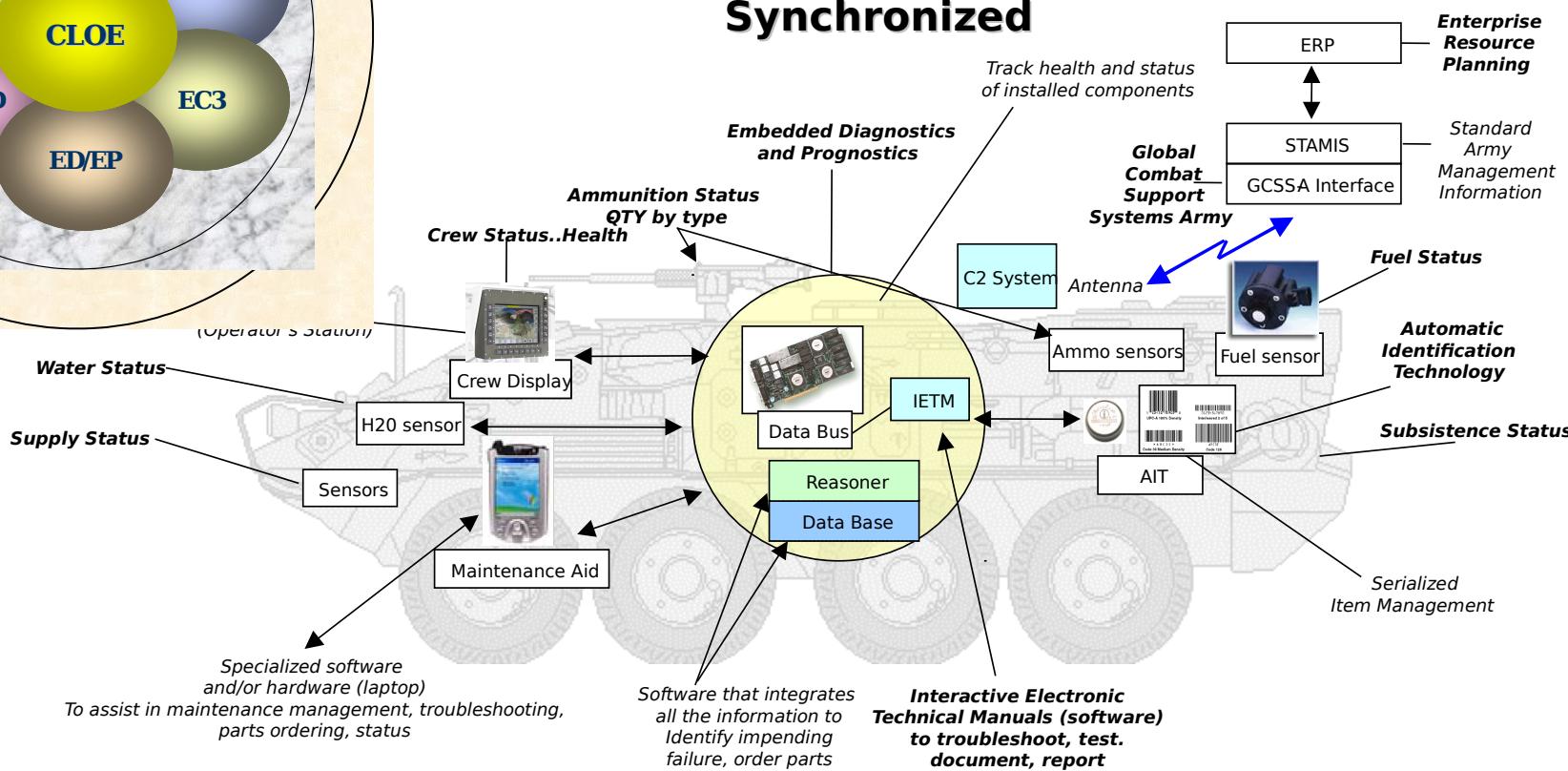
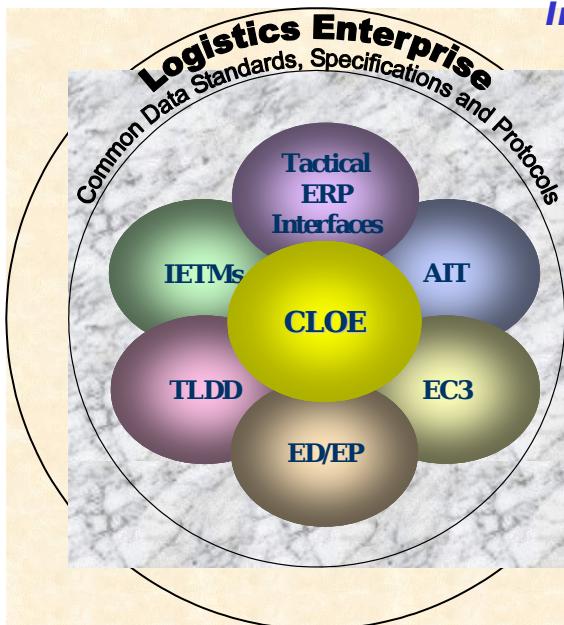
- **Process For Synchronizing And Integrating Doctrine And Technology**
  - Equipment Health Management
  - Condition-based Maintenance
- **Army-Approved Approach For Interoperability of Enablers in Logistics Transformation**
- **The Evolving Operational Architecture that Enables Sustainment Interoperability On The Battlefield**
- **A Program, A Process And An Operational Architecture: Enables Sustainment Of Mixed Force Generations On The Battlefield**

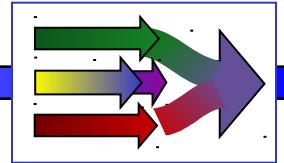


# CLOE is...

**Integrated Weapon System Status and Health Management  
in a networked environment using  
common data standards, specifications and protocols**

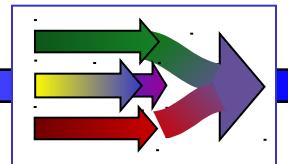
**Sensor-Based Self Monitoring Self Reporting  
Automatically feeds Army Shared Data Environment  
Synchronized**





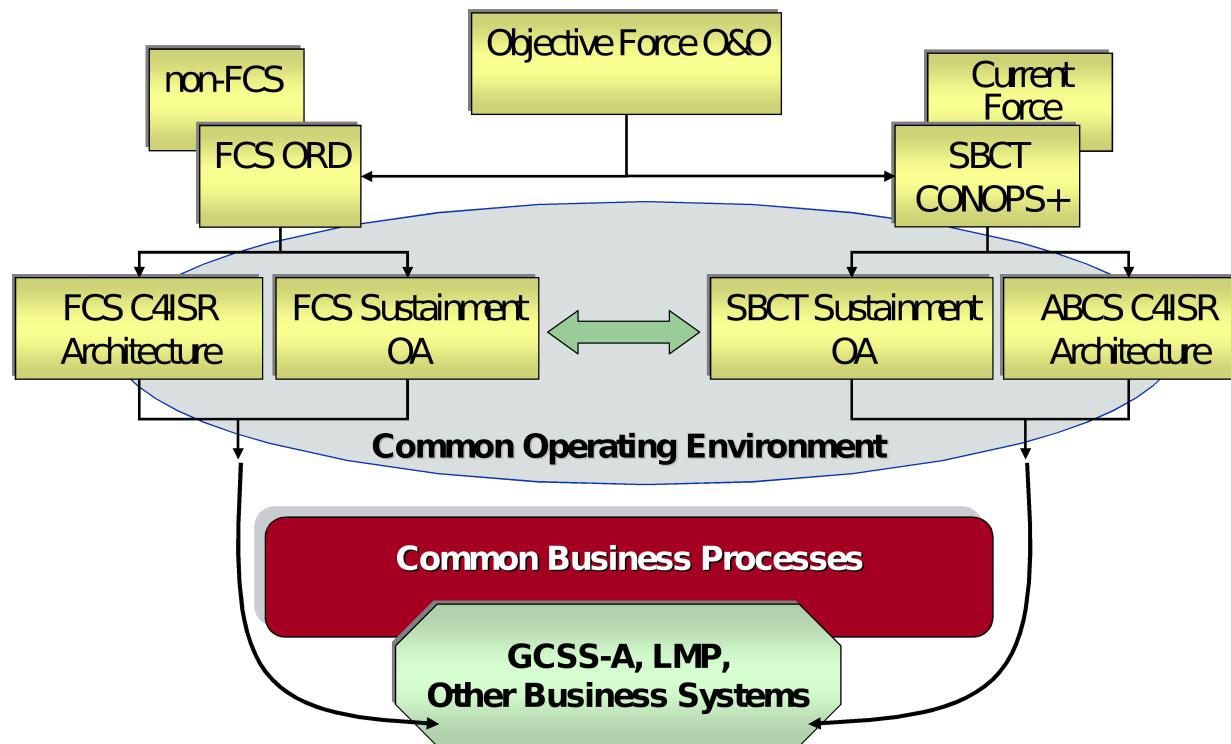
# **CLOE Early Successes**

- **Near-term:**
  - Establish The CLOE Program and the Army-wide Coordinating Processes (2003)
  - Finalize The CLOE Operational Architecture (V1.0) For the SBCT POE Technical Test (2003-2004)
  - Establish The CLOE SIL
  - Conduct The SBCT POE Technical Test
  - Scale-up The Operational Architecture (2003-2006)
    - V2.0: Ground + Aviation + GCSS-A
    - V3.0: V2.0 + Soldier Systems
  - Conduct the CLOE Experiment (2006-2007)



# Follow-On CLOE

- Long-Term:
  - FCS / Non-FCS Sustainment Interoperability
  - Objective Force Sustainment Interoperability
  - Continuous Improvement



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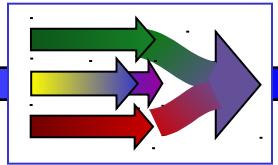


Common Logistics Operating  
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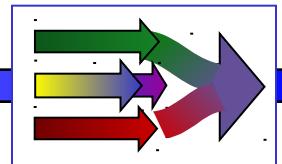
GOSC

29 Sep 2003

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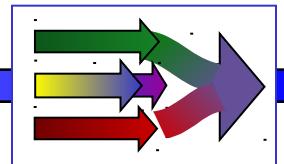
## *CLOE GOSC Pre-Brief*



# CLOE Policy Memorandum

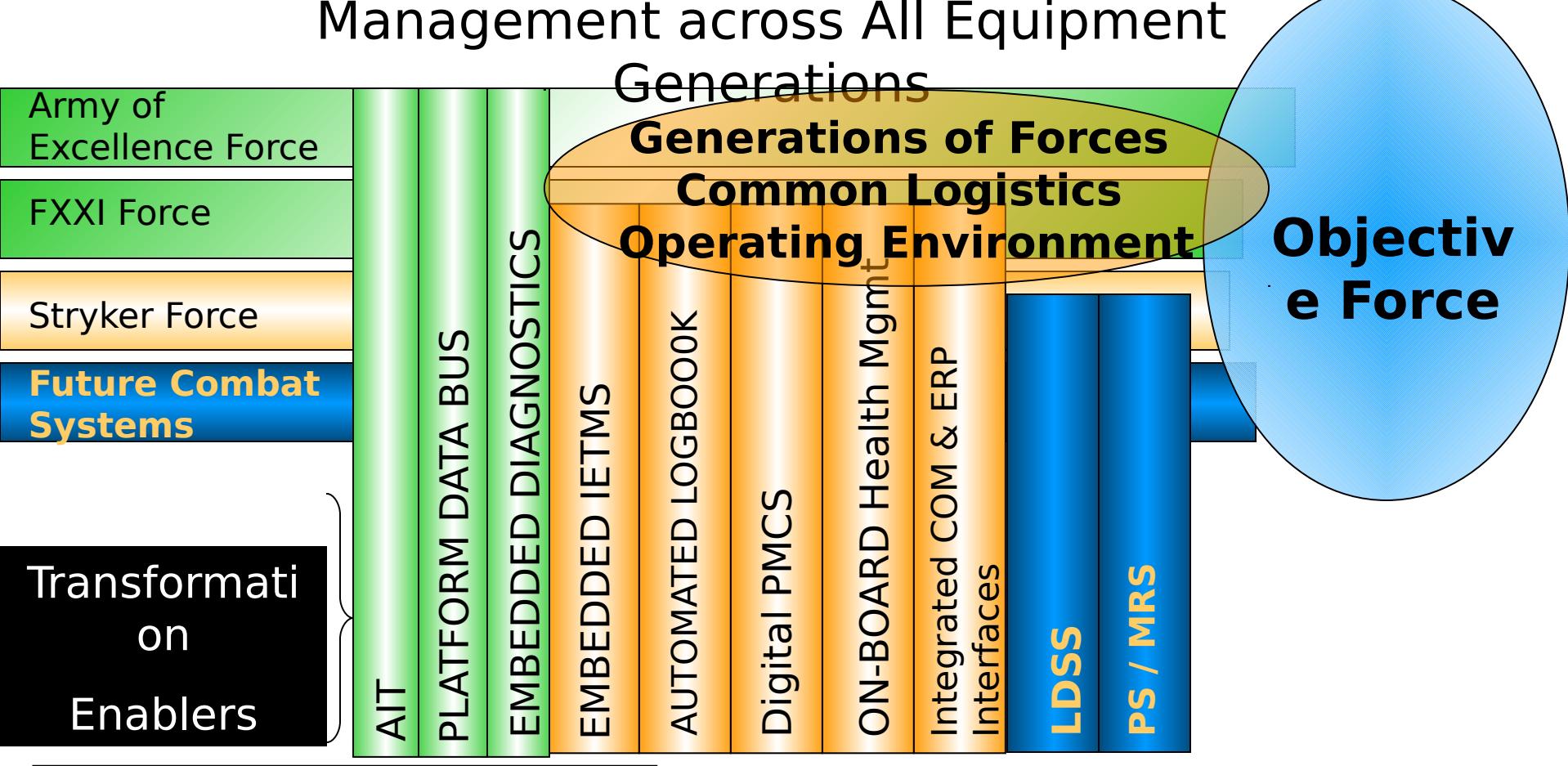
- CLOE Capabilities and Standards Policy Memo signed 25 Jul 03 by Assistant Secretary of the Army (ALT) – *"The Army will employ a CLOE to capture, store, retrieve, and utilize logistics data from battlefield operating systems"*
- Policy states:
  - G-4, as the Responsible Official for Sustainment to *lead, coordinate, and implement* the CLOE
  - TRADOC must consider CLOE *common data standards, specifications, and protocols* for sensor-based, self-monitoring, self-reporting platforms and equipment when writing and updating operational capability documents for OF units.
  - Program Executives and Managers use CLOE-designated *common data standards , specifications and protocols* when acquiring critical information technologies
  - Program Executives and Managers *acquire access to platform/equipment technical data* for all ACAT I, II, and III systems
  - Program Managers and Managers and AMC MSCs will *make technical data available* to acquisition and sustainment communities using commercial Program Data Management (PDM) systems

*LTA has been assigned as the Executive Agent for CLOE*



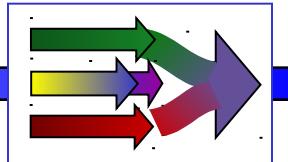
# LOGISTICS TRANSFORMATION

Doctrine and Technology Must Be  
Interoperable for Platform & Soldier Health  
Management across All Equipment  
Generations





# CLOE Program Execution



## 1. CLOE Strategy Paper

- Developed by LTA & G-4

## 2. CLOE Campaign Plan

- High-Level Overview
- Reviewed Annually
- Signed by G-4
- CLOE CONOPS

## 3. Army Asst Sec of Acquisition Policy Memo

## 4. Management Plan

- Detailed Plan
- GOSC Structure
- Establish CCB Process
- Establish CLOE SIL

## 5. Implementation Plan

- Detailed Plan
- Continuously updated
- Signed by G-4 & G8

## 6. Architecture Plans

- Working Documents
- Updated During Each Phase of Transformation Development
- Addresses OF Increment #1



JIM C4ISR  
Unit of Action

Unit of Employment  
Commonality of Systems

Performance Based Logistics

Embedded Diagnostics & Prognostics

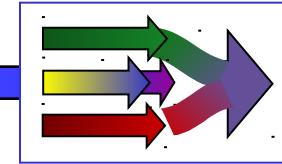
The right information, at the right time and right place

- Program Management Structure
- Addresses Standards & Commonality
- Establishes Configuration Management
- Current Force Retirement plans

- Guidance for PEOs/PMs
- Relationship to GCSS-A/LMP & Stryker Forces, FCS & UA
- Migration of Current Force
- Follows EI Template
- Embedded Diagnostic Baseline
- Logistics Template for Current
- Migration to OF



# CLOE Governance



AMC

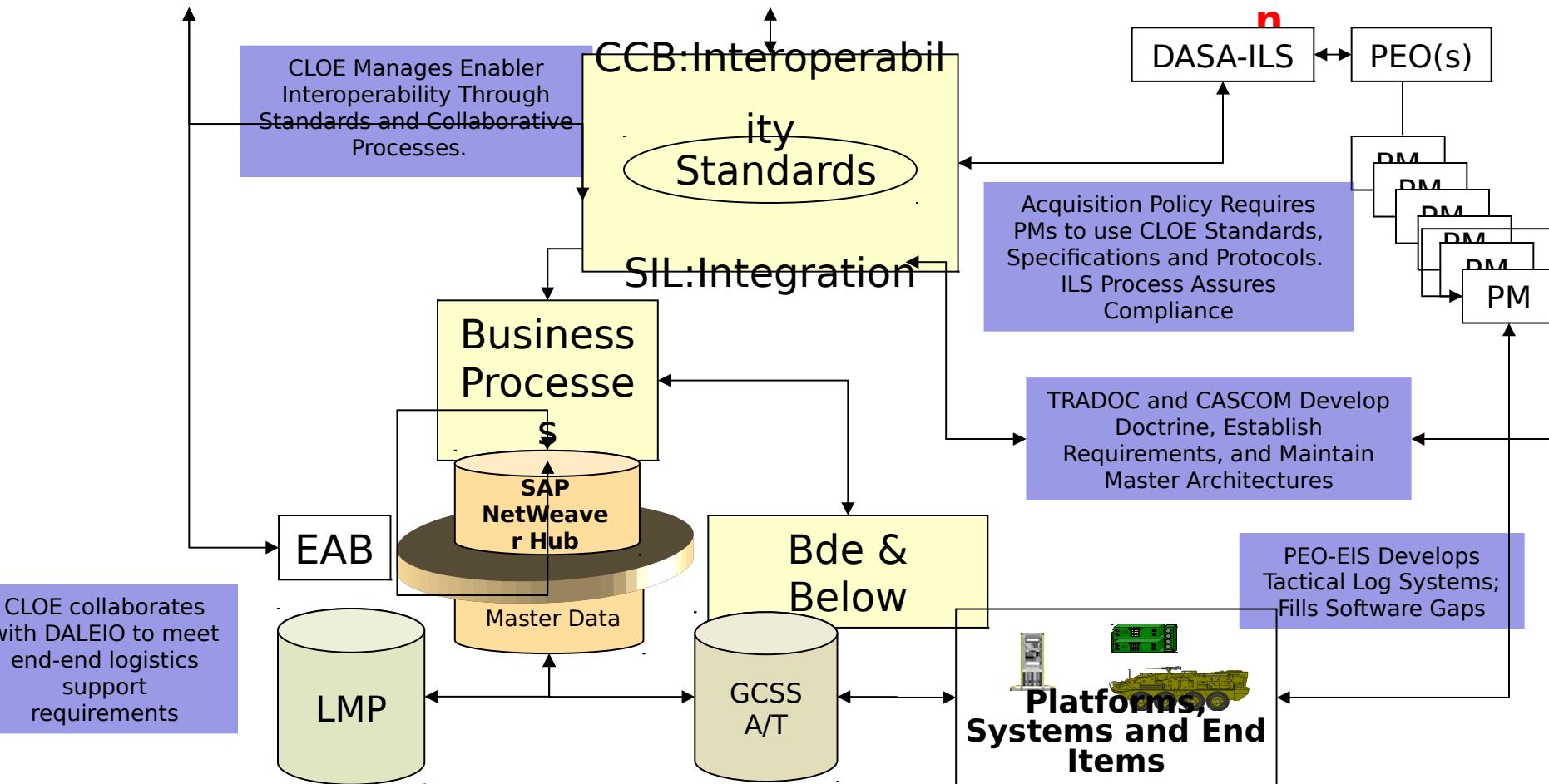
ARMY LEAD  
G4/LTA

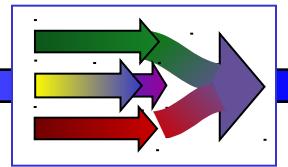
ASA(ALT)

Enterprise  
Integration

Policy  
Oversight

Policy  
Implementation

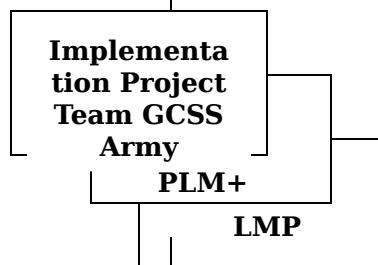




# CLOE and the Logistics Enterprise Integration

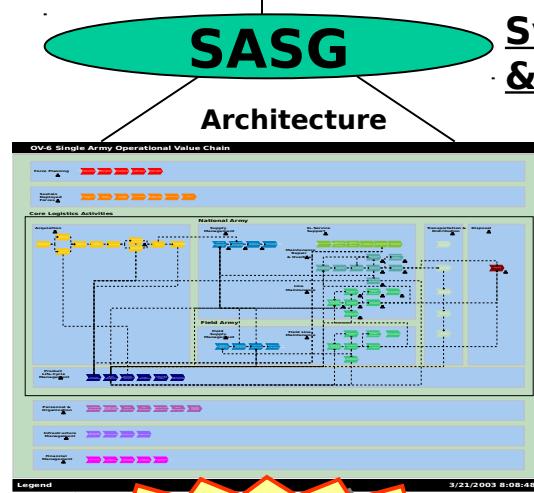
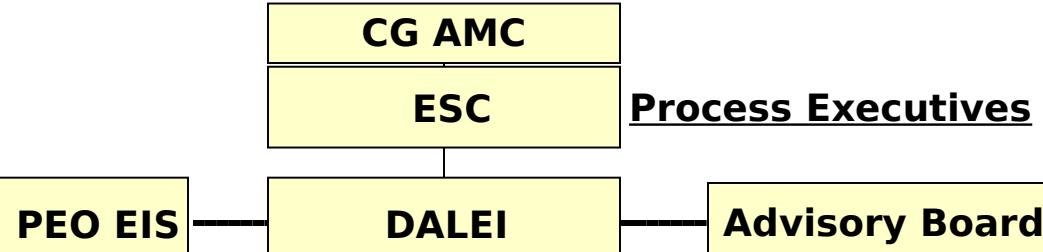
Supports current Legacy and ERP

Long term - exists to work requirements and configuration management



Business Team Leads (Functional)

Implementation/Best Business Practice Consultants



Synchronization & Integration

Business Area Leads LAISO/CASCOM

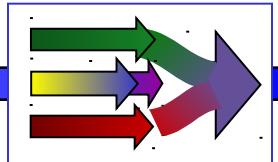
- Requirements Oversight
- Data Management
- Integration Opportunity Prioritization
- Policy Change Assessment

Subject Matter Experts

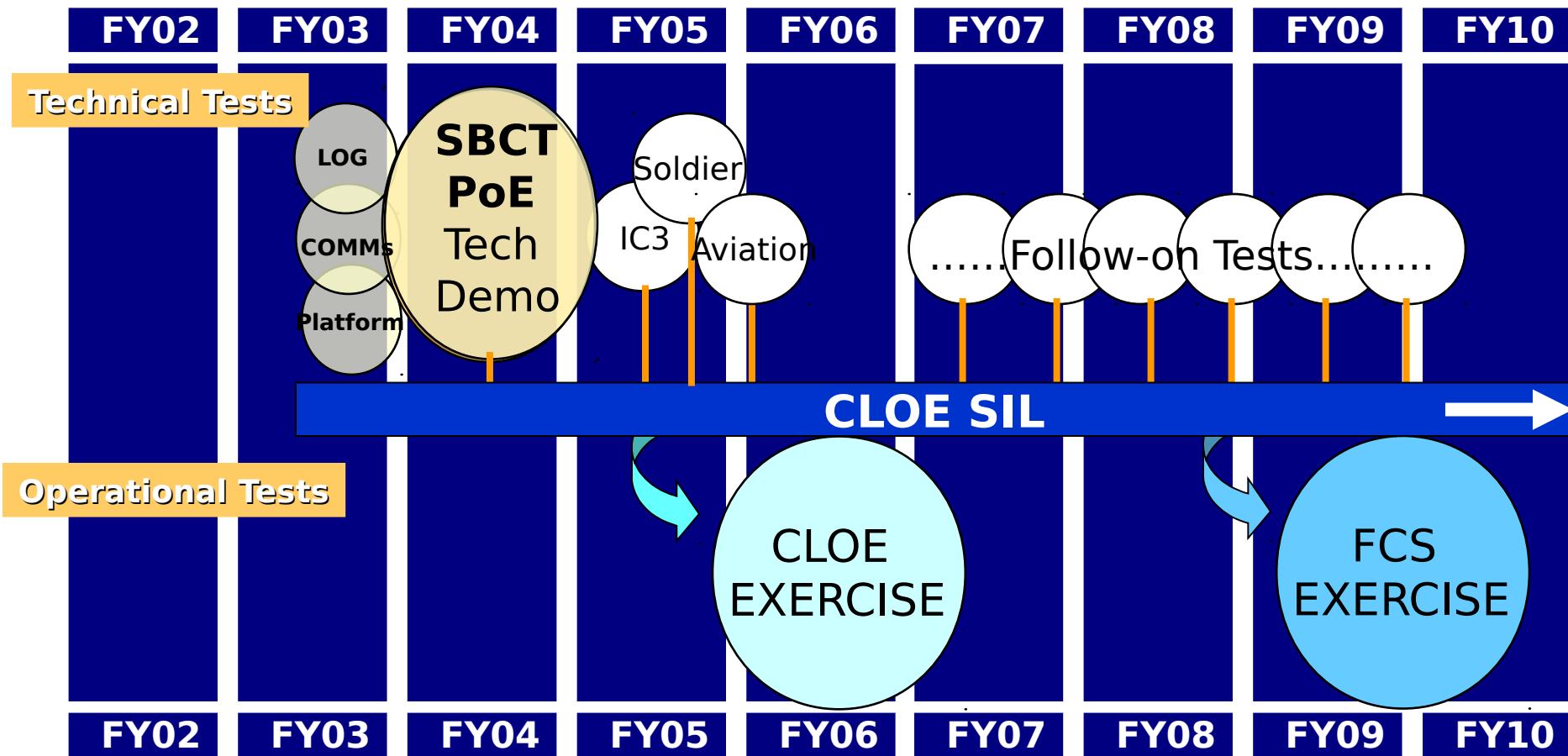
CLOE:

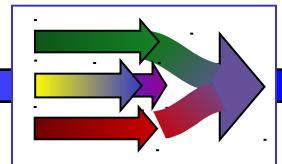
- G-4/LTA membership in SASG
- Business Team Lead for CBM
- Business Team Lead for Field Maintenance

*Sustaining The Transforming Army*



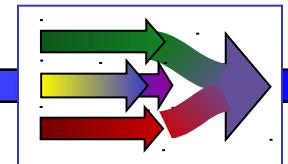
# CLOE Major Milestone Schedule





# ***LOG Transformation Technical Risk***

- **Reduce Technical *Risk* For Implementing Log Transformation Enablers**
  - Establish & Operate A CLOE Systems Integration Laboratory (SIL)
    - Evaluate Concepts
    - Verify & Validate Interfaces & Interoperability
    - Test Before Acquire/Field
    - Key Configuration Management Tool
    - Supports Simulation-based Acquisition
    - Standards-based Technology Insertion
  - Mobile SIL for Demonstrations

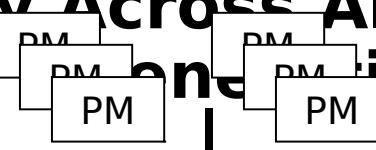


# CLOE Systems Integration Lab

The CLOE SIL Operates as a Meta-Laboratory,  
Ensuring

Interoperability Across All Equipment Force  
Synchronization Connections Life-cycle

Synchronization  
Inputs

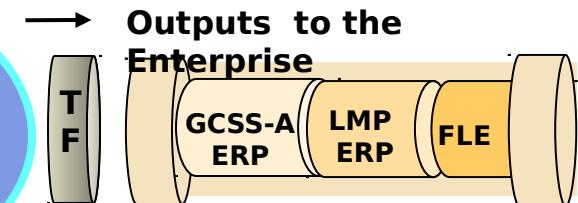


Verification & Validation

Operational Inputs →



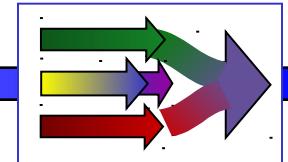
CLOE SIL



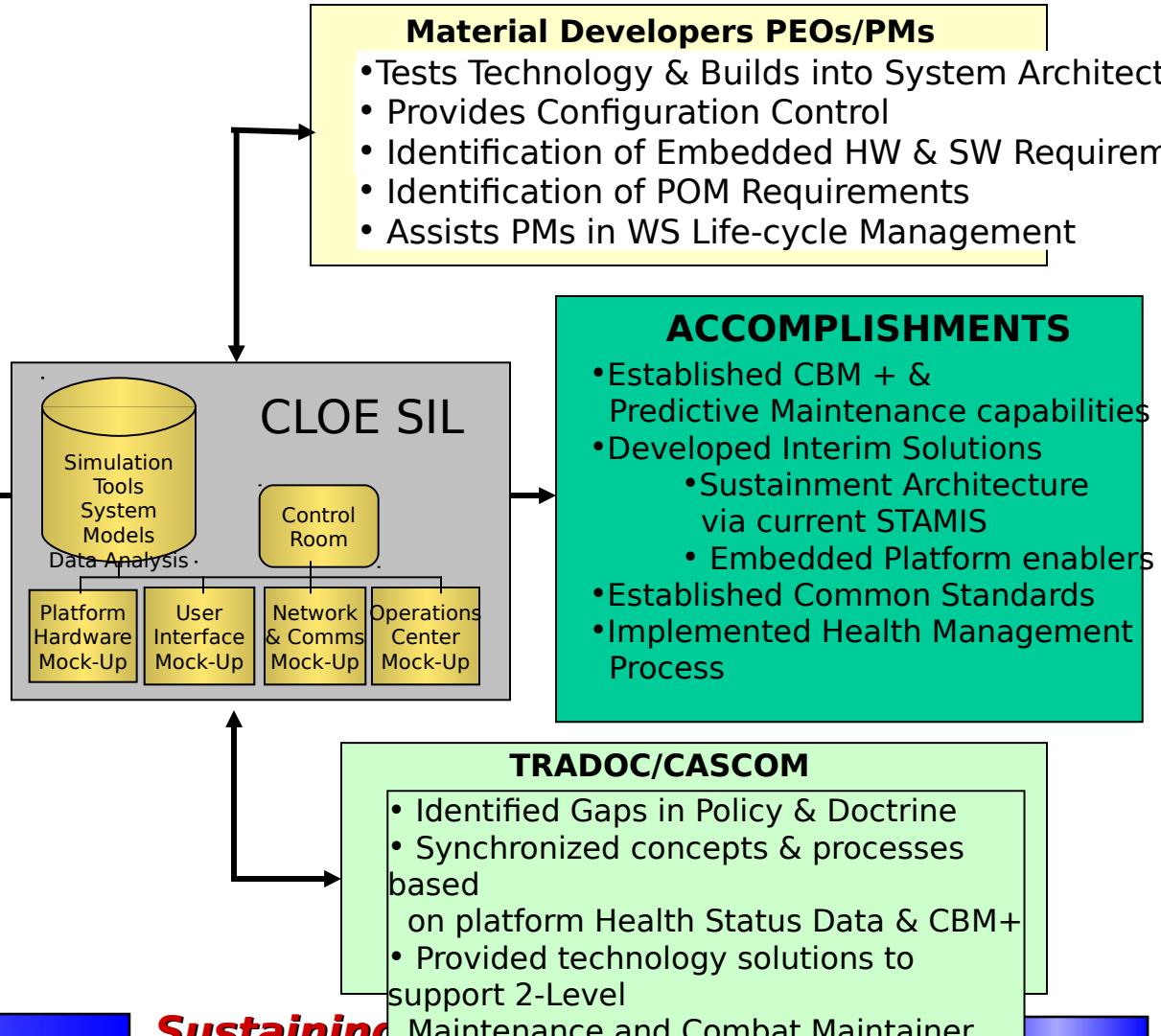
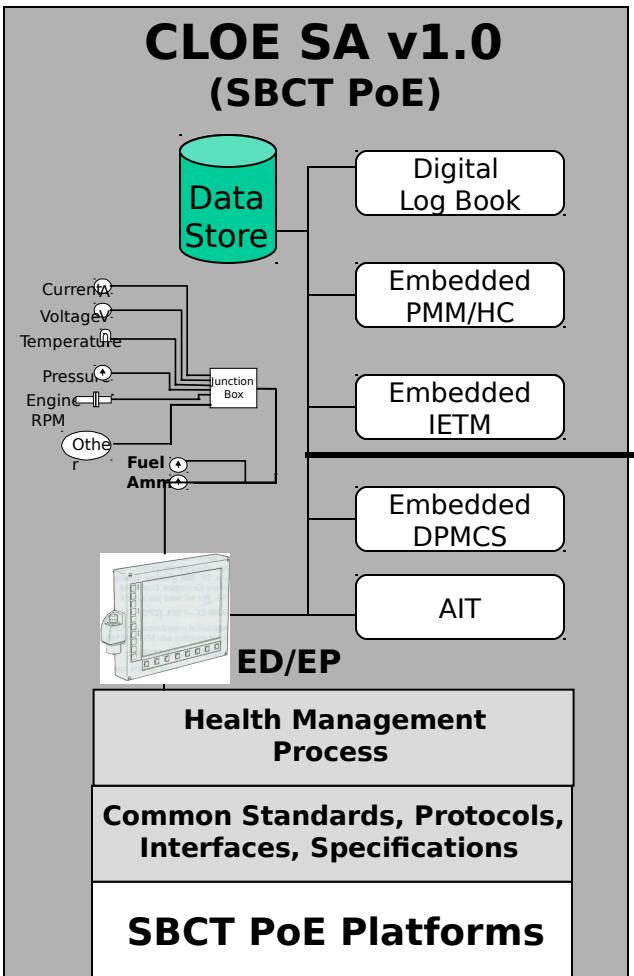
- System Requirements
- Doctrine
- Operational Architecture

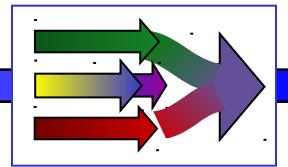
- Sustainment Interoperability
- Software & Hardware V&V
- Life Cycle Support

Platforms & Soldier Systems

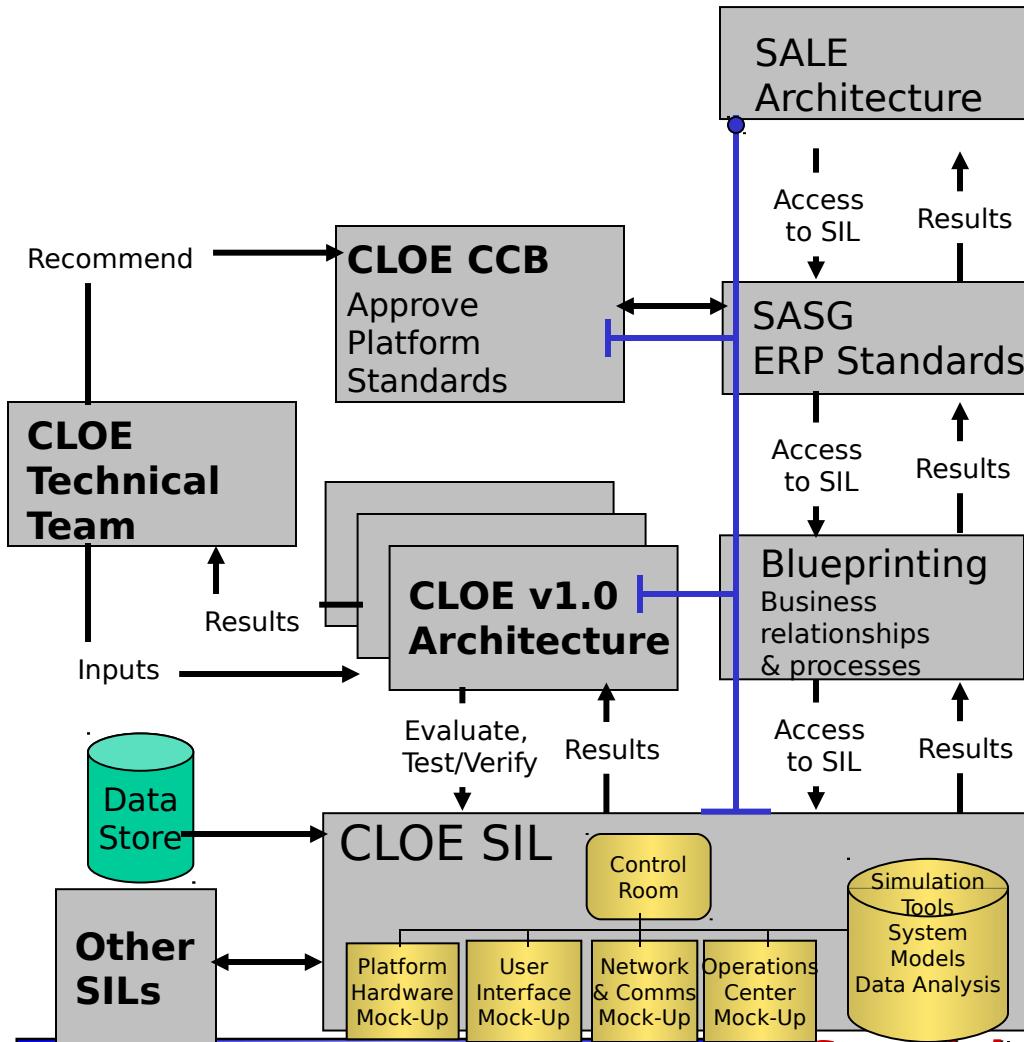


# CLOE SIL Business Case - Platform



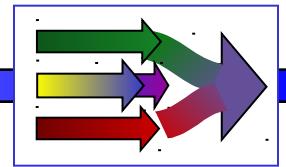


# *CLOE SIL Business Case - Enterprise Integration*



# Work Together: Establish Management & Technical Working Relationship Between LTA and AMC DALEIO

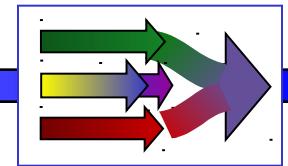
**OBJECTIVE:**  
Determine Business  
Relationships and Processes  
Required for Blueprinting  
Based on Newly Available  
Platform Data



## *CLOE SIL Opportunity*

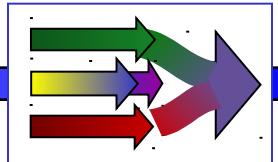
### **Ft. Indiantown Gap**

- Slated to Have Stryker Brigade – Training Started - IOC 2008
- Lab Environment As Well As Real Platforms for Testing
- Integrates Guard and Reserves Into the Transformation Process
- Platforms and Facilities,e.g. Firing Ranges With Support Structures
- Extensive Training and Development Environment
- Combat Fixed Tactical Internet and ULLS/SAMS
- Home To Eastern Army Aviation Training Site
- They Are Ready and Willing to Support



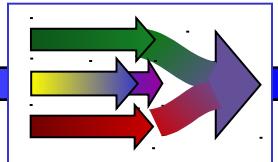
## *Benefits of Establishing a CLOE SIL*

- Provide Roles & Responsibilities for Platform Management of Logistics Transformation Activities
- Establish One location for Army Logistics Transformation Synchronization and Integration Efforts
- Reduce Logistics Transformation Risk
  - Configuration Management Control linked to the CCB Process
  - Verify & Validate Technical Interoperability
- Prioritized CLOE SIL activities provides insight for POM Strategy
- Test Before Acquire/Field



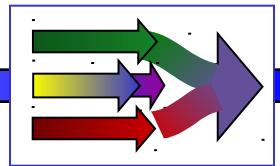
## *CLOE Funding*

- **Currently USALTA + MDEP VALT**
- **Program projected to grow**
  - **Systems Integration Laboratory (SIL)**
  - **Additional related programs**
    - **Aviation**
    - **Watercraft**
    - **Engineering**
    - **Ordnance**
  - **Multi-year guide for Objective Force development**
  - **Complements other programs (FCS, etc.)**



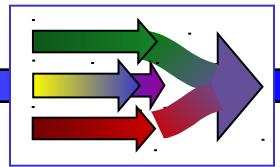
## *CLOE Funding Cont'd*

- **Need separate MDEP**
- **Track program growth, interrelationships**
- **Prioritize CLOE**

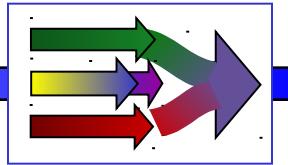


## *Recommendations*

- Approve the Establishment of a CLOE SIL
- Approve a CLOE MDEP
- Approve reporting through the ESC and the LBOD

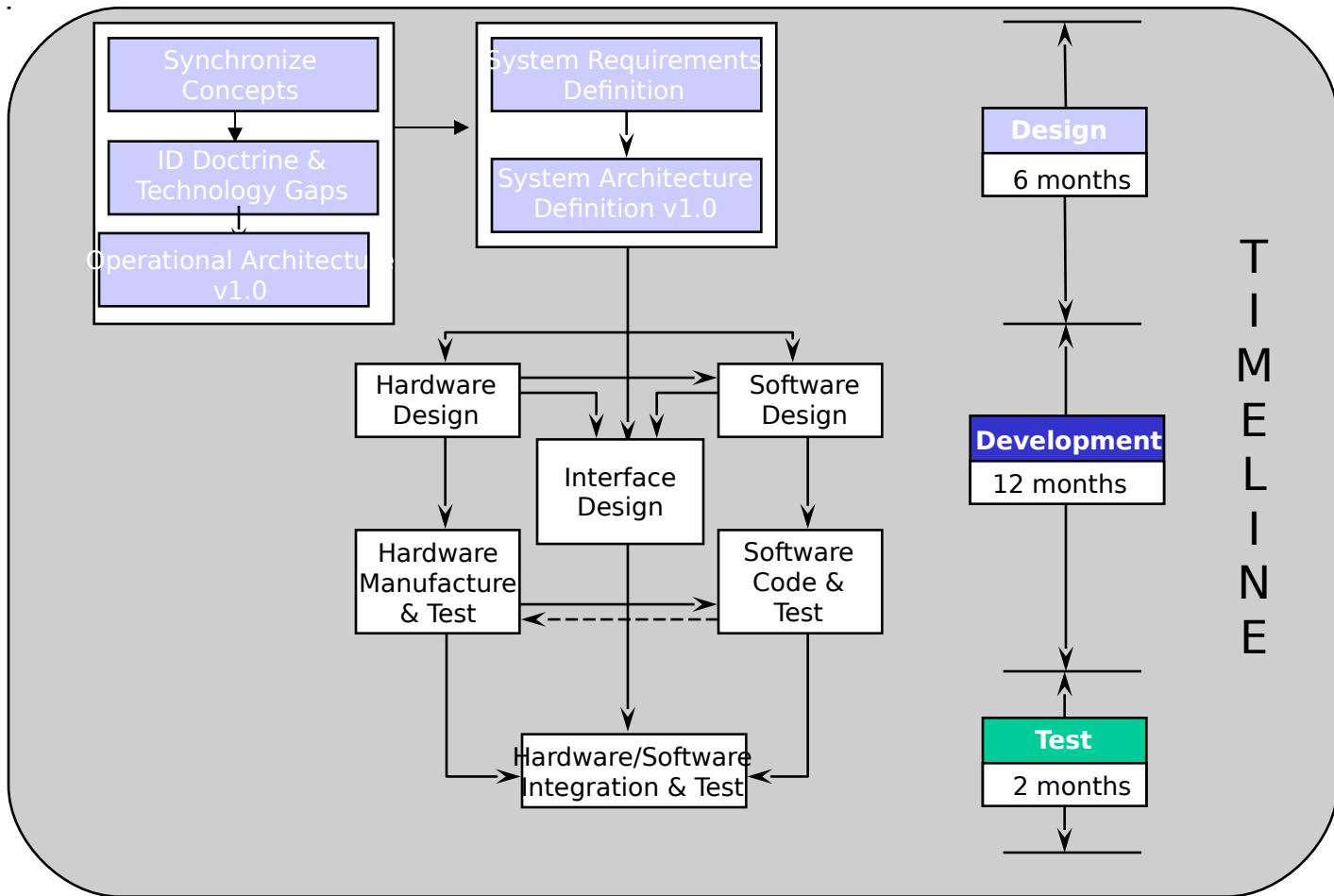


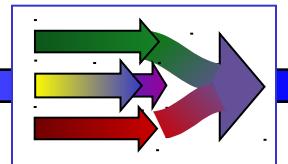
# BACKUP



# CLOE Architecture v1.0

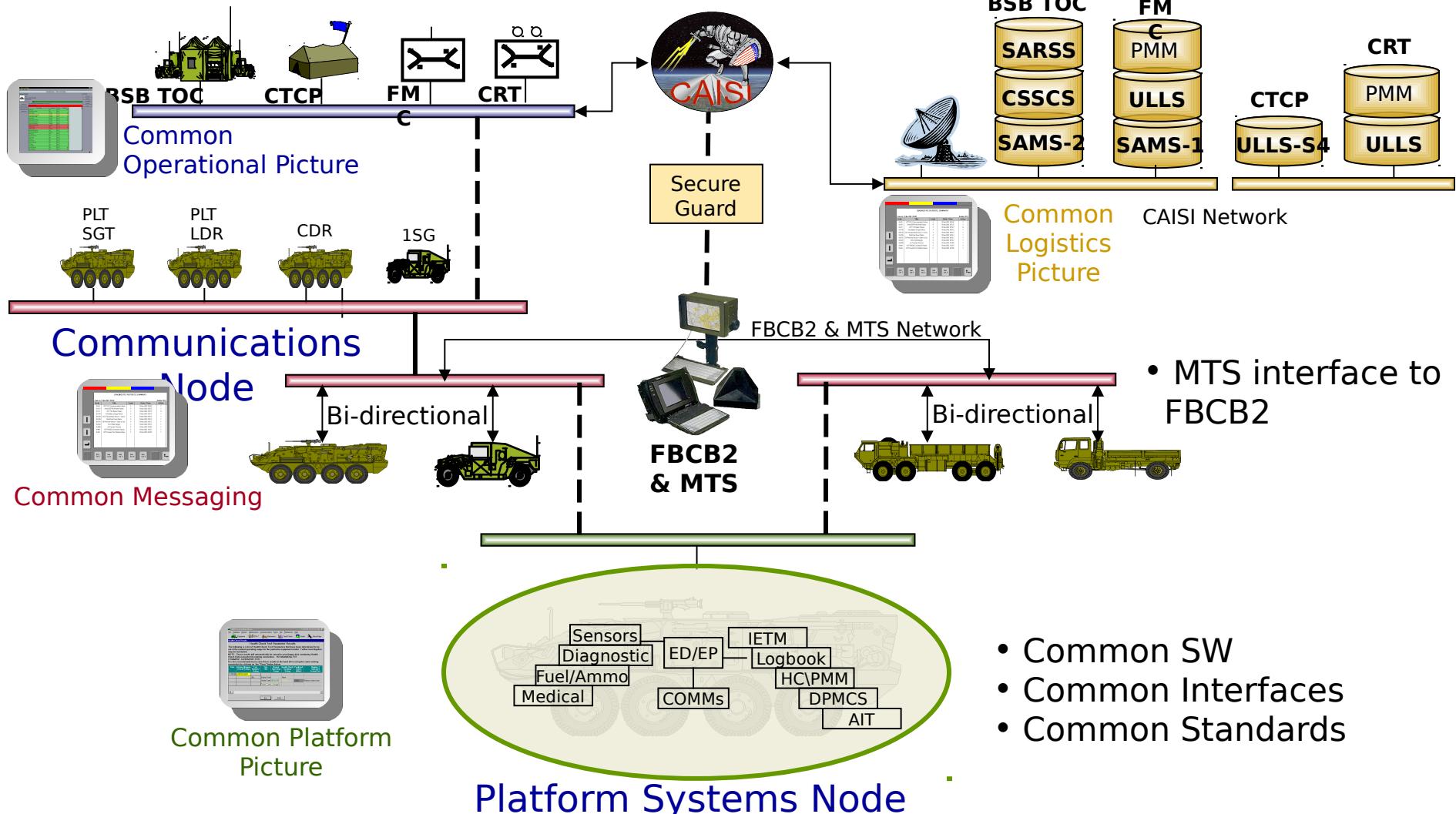
## SIL Prototyping Process Flow



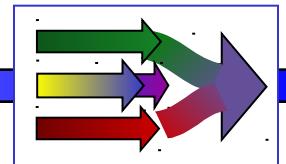


# SBCT PoE Demo – Version 1.0 CLOE Architecture

## Information Node      Sustainment Node

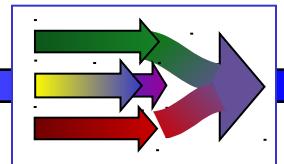


***Sustaining The Transforming Army***

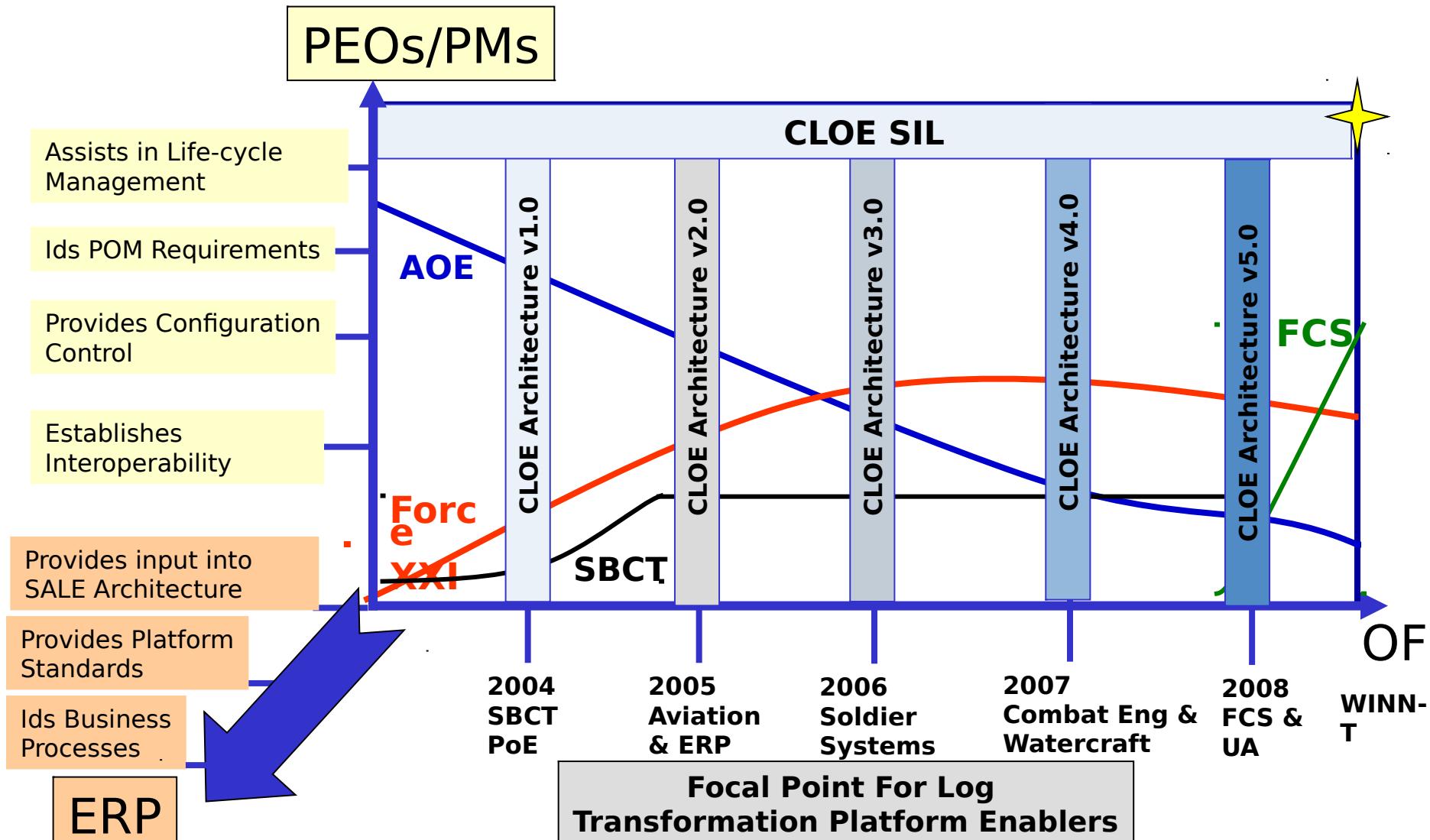


# Risk Assessment

- *SBCT POE Outcome*
  - **SBCT PoE Campaign Plan Has Been Very Successful**
    - **Established the Importance of the SBCT PoE**
    - **Led to the “Piling on Effect”, Increased Scope**
    - **Increased the Risk of the SBCT PoE Technical Test & Demo (Cost & Schedule)**
    - **No Active Duty Green Suiters Support Available for Technical Test & Demo**
- *Result Has Led Us to Reconsider Our Direction Forward*

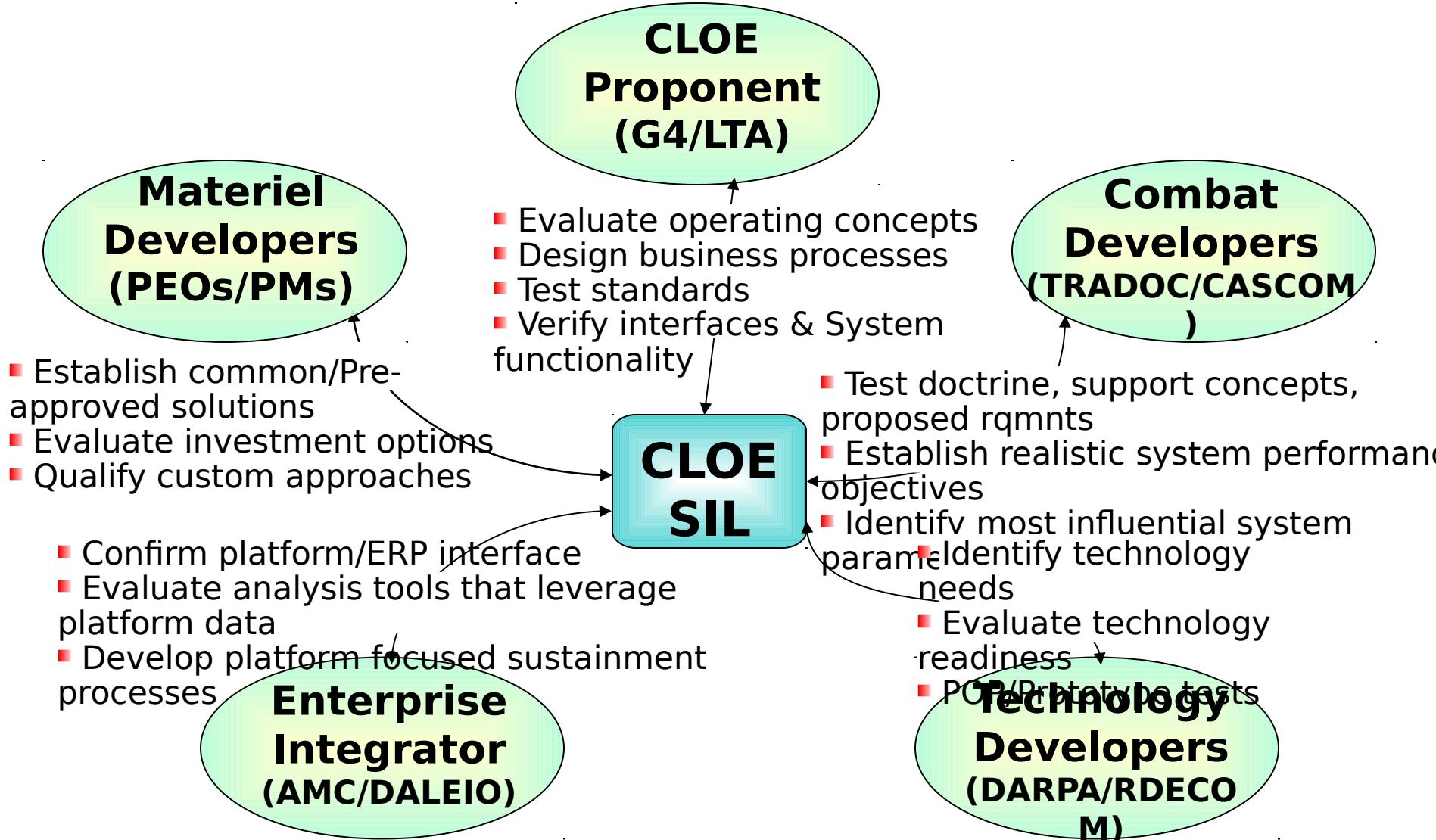
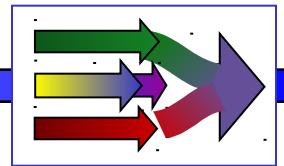


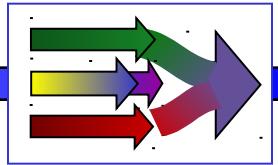
# Why We Need a Logistics SIL





# CLOE SIL Supports All Phases of Log Transformation

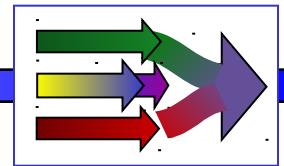




# CLOE POM Strategy

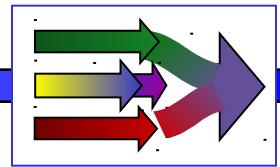
## CLOE Funding Requirements (\$ 000s)

Function	Activity	Feature	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Technical Team	LTA Staff	Sustainment									
	Architecture and Management	Sustainment									
	Engineering	Sustainment									
	Modeling, Business Case, Documentation	Sustainment									
	Subtotal										
FCS Partnership	"B Kit" Engineering										
		Hardware	Acquisition								
		Software	Acquisition								
	Complementary Programs										
	Engineering										
		Hardware	Acquisition								
		Software	Acquisition								
	Subtotal										
CLOE Activities	SBCT POE Demo(s)										
		Hardware	Acquisition								
		Software	Acquisition								
		Integration	Acquisition								
		Operation	Sustainment								
	CLOE Exercise(s)										
		Hardware	Acquisition								
		Software	Acquisition								
		Integration	Acquisition								
		Operation	Sustainment								
	CLOE SIL										
		Hardware	Acquisition								
		Software	Acquisition								
		Integration	Acquisition								
		Operation	Sustainment								
	Subtotal										
PM Mods	TBD		Acquisition	TBD							
		Sustainment	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

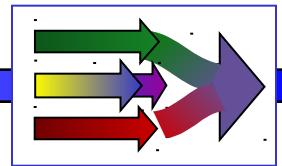


## *Thoughts to take away*

- **CLOE Is A Collaborative, Living Process That Works With All Major Army Agencies, Organizations and Programs to Enable Logistics Transformation**
- **CLOE Is The Only Initiative That Addresses ARMY Sustainment Interoperability Among Current, Stryker And Objective Forces With Respect to Condition-Based Maintenance and Anticipatory Logistics**
- **The Synchronization of Sustainment Doctrine & Technology is an Outcome of the CLOE Process**
- **The Path For Platform Technology Insertion Goes Through the CLOE SIL**



# BACKUP



## ***CLOE Purpose***

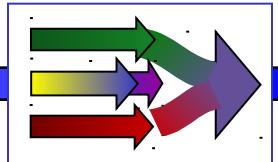
**The Purpose Of CLOE Is To Ensure Sustainment Interoperability Among Self Reporting, Self-Diagnosing Platforms And The Objective Force Sustainment System Network To Provide The Highest Possible State Of**

***Operational Availability***

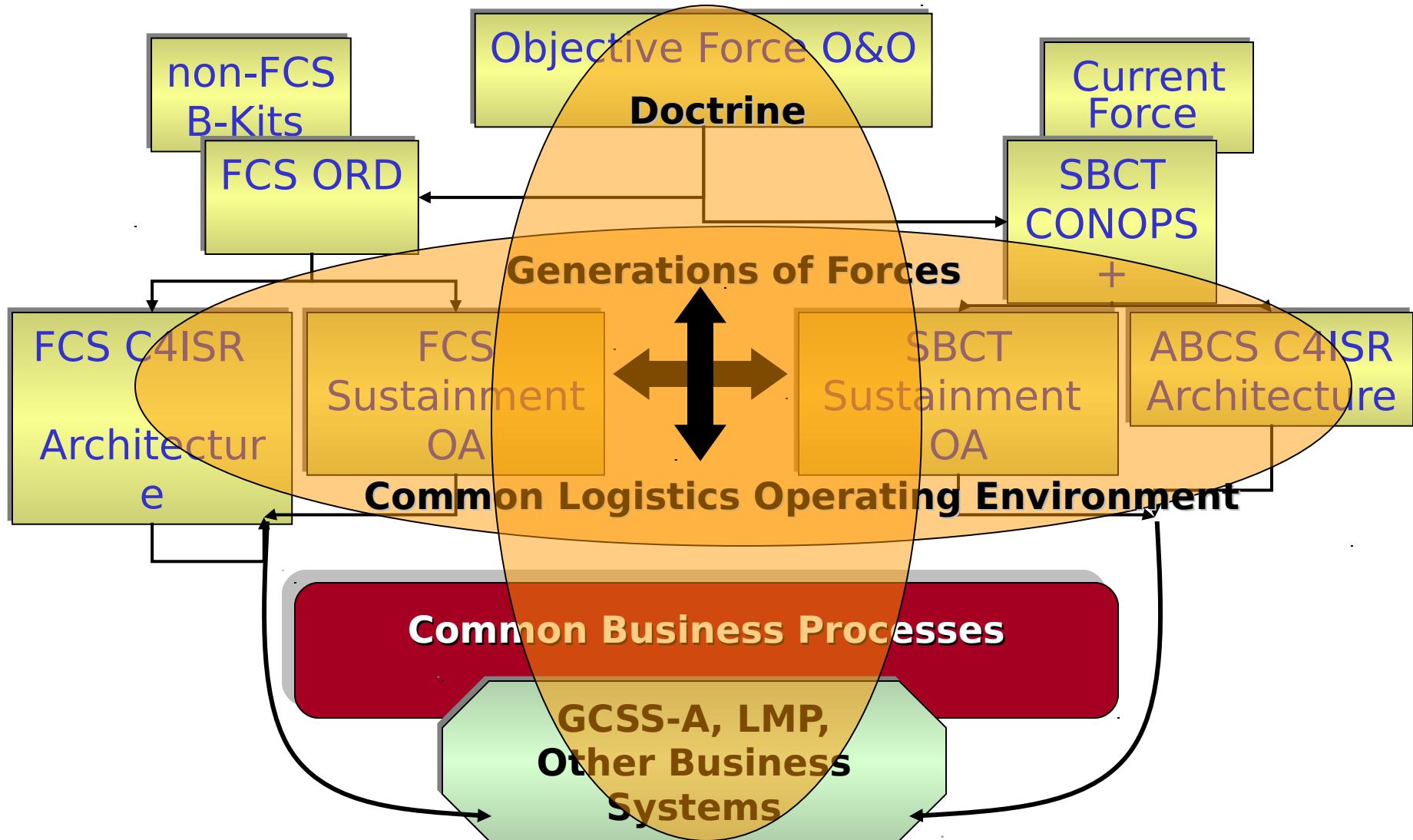
***Mission Capability***

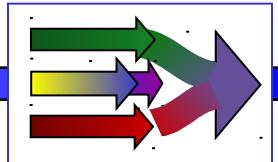
***Combat Power***

**While Reducing The Logistics Footprint**



# CLOE SCOPE





# CLOE Applies Common Standards

## Platform

### GROUND

SAE - Vehicle Communications Data Bus Standards /  
IEEE Ethernet

API - SAE Recommended Protocols

### AIR

Mil-Std-1553 Avionics Data Bus

IEEE Ethernet / Fiber Optic Standards

## Middleware

XML, SOAP, Web Services, J2EE

## Communications

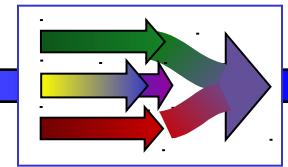
Sipernet, Nipernet, NSA Security Protocols;  
IEEE 802.11 Wireless

## ERP

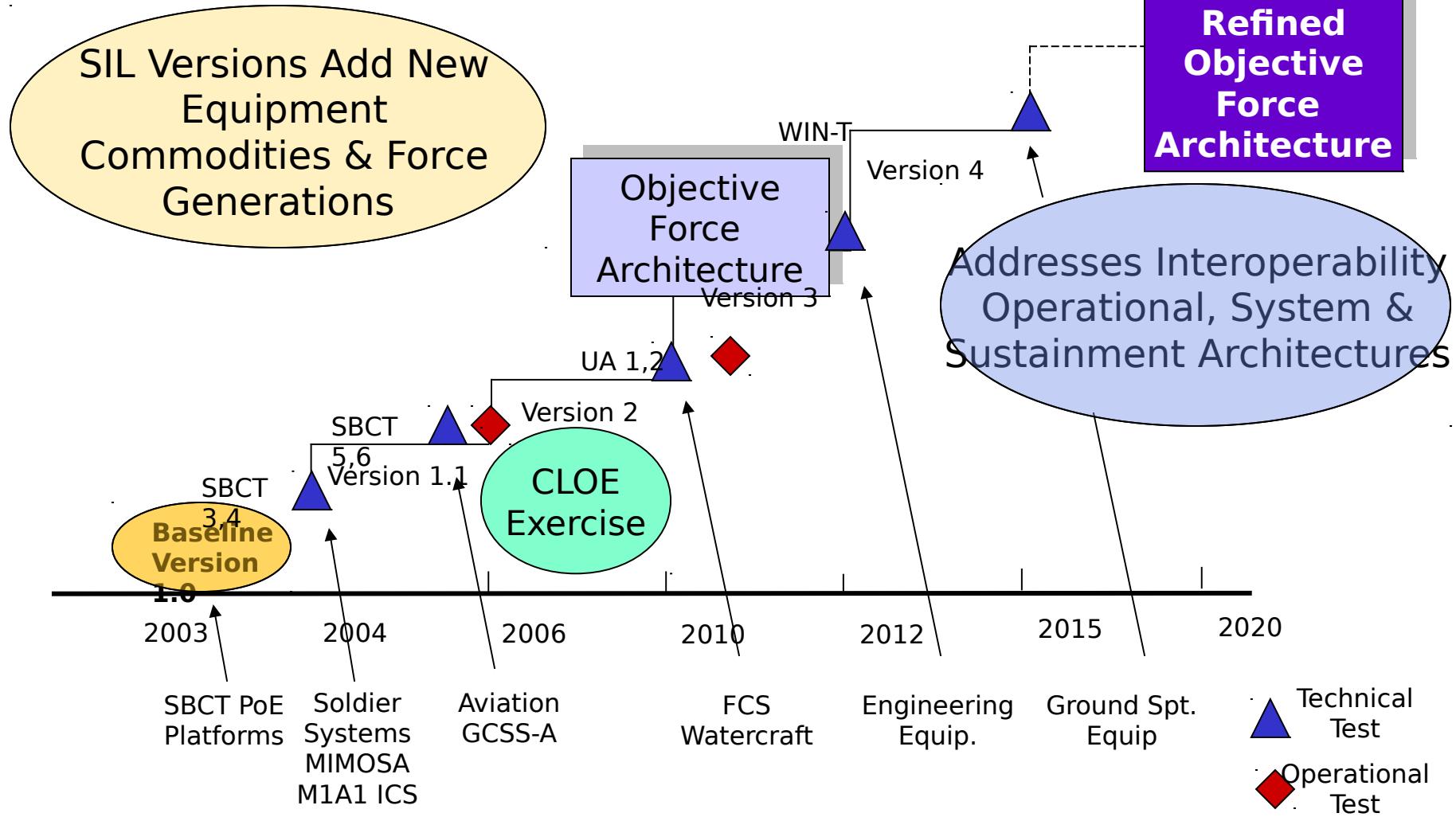
Mil-Std-3008, SAP OCI; MySAP Web Portals, MIMOSA

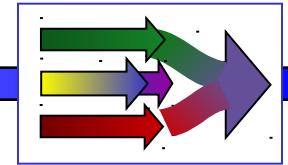
## Architecture

DII-COE Compliance; Joint Technical Architecture - Army Compliance



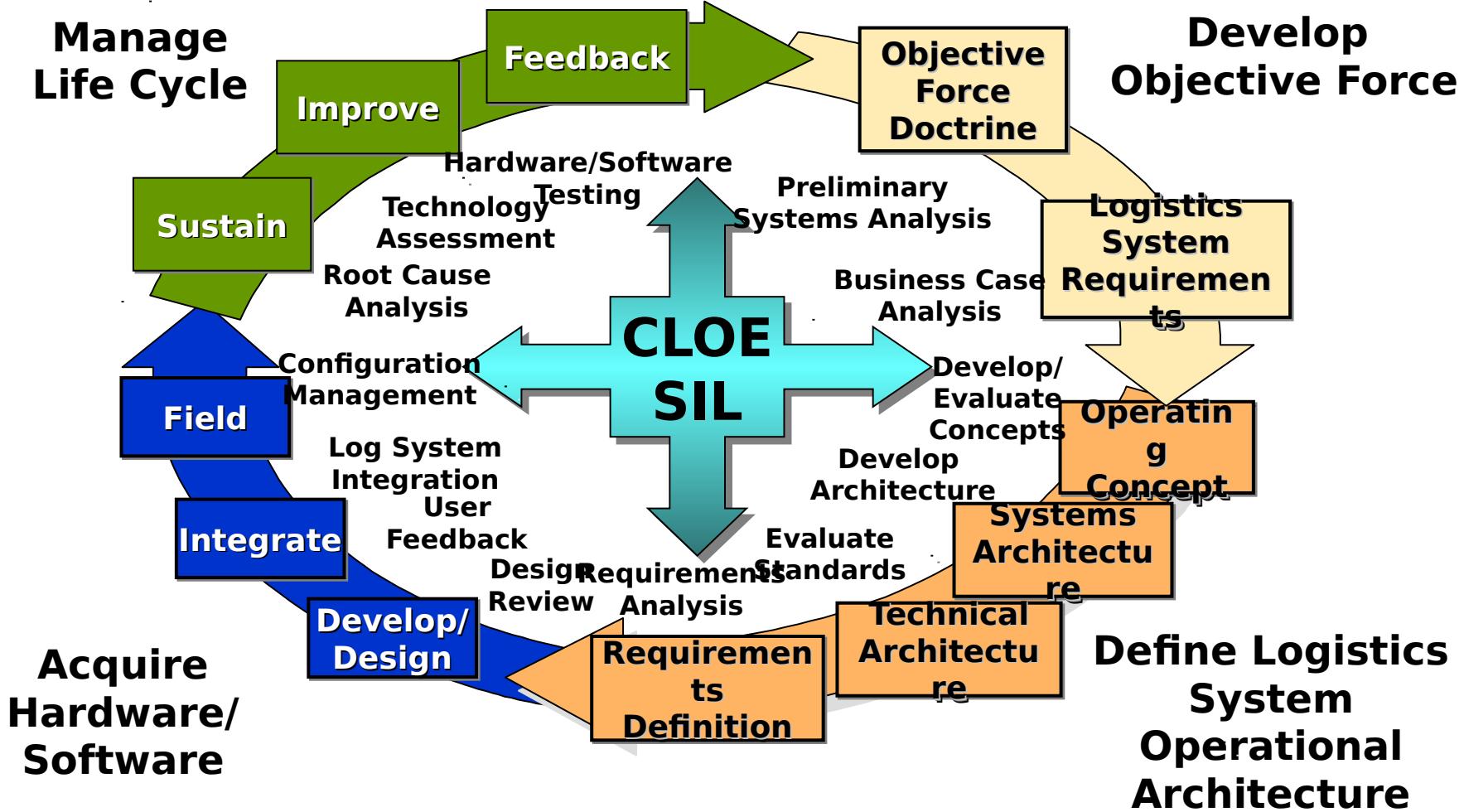
# CLOE SIL Continuous Improvement Cycle

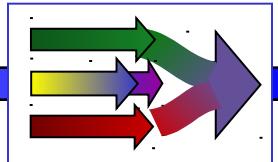




# The CLOE Systems Integration Laboratory (SIL)

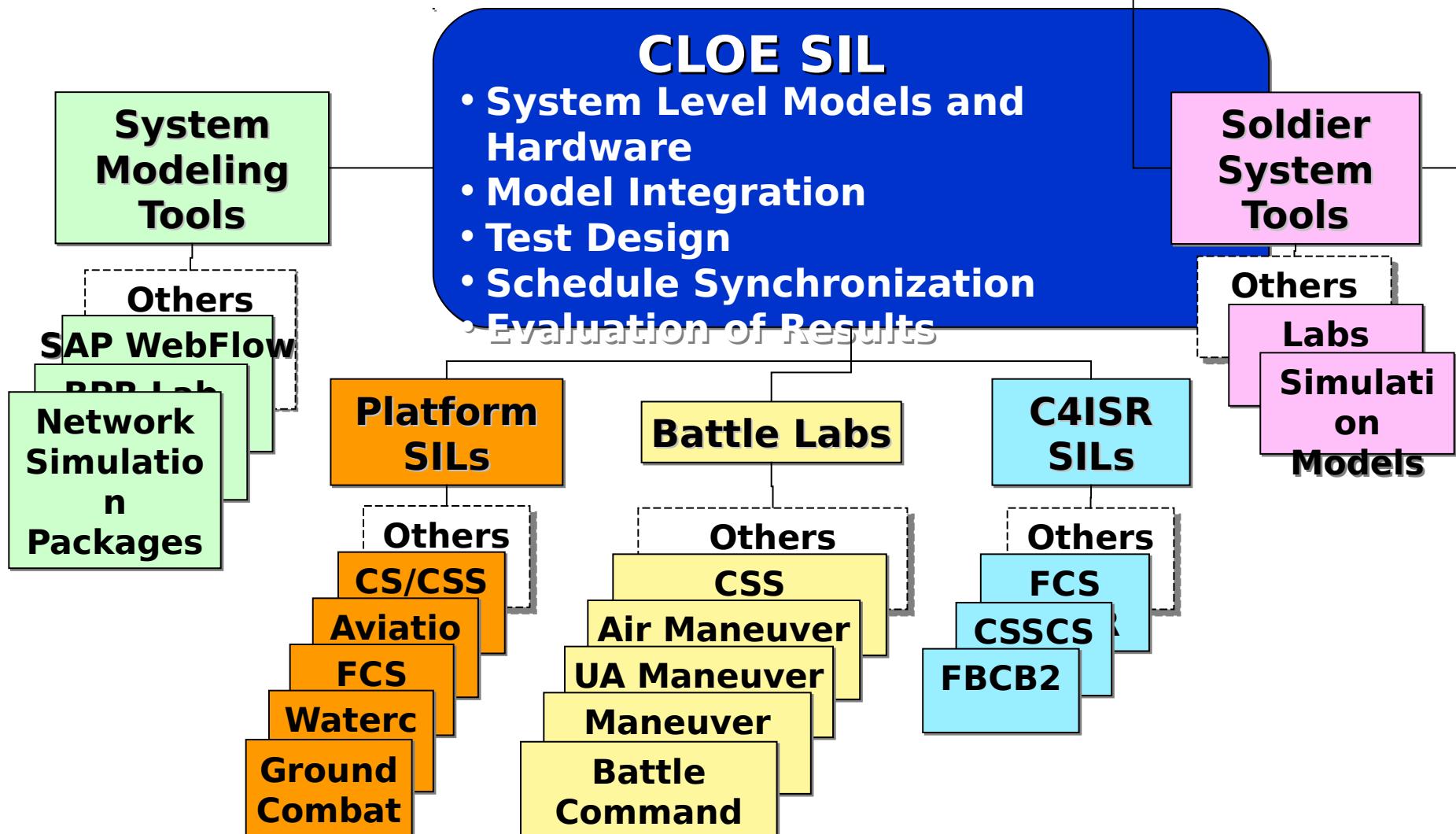
Support Total Life Cycle of Objective Force Sustainment

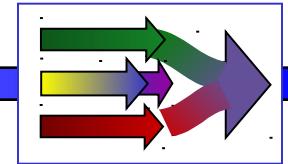




# CLOE SIL Concept

Distributed Analysis and Testing Environment





# CLOE Funding Comparison

- **MDEP VALT (POM 05-10)**
  - Platform standards
  - ERP interfaces
  - On-board integration
  - Proof of enablers
  - Experiment (initial planning)
  - Outyear prognostics development
- **New MDEP adds**
  - SIL
  - Related programs
  - OF architecture development
- **Related programs**
  - FCS “B Kits”
  - FCS Complementary Programs
  - System/subsystem EV&V